

PUGET SOUND GMAP

November 17, 2006

TOPICS:

Contaminated Site Cleanup
Follow-Up on Nutrients and Pathogens

- Puget Sound Action Team
- Department of Health
- Department of Ecology
- Washington State Parks
- Department of Natural Resources
- Department of Community,
Trade and Economic Development

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STATUS OF FOLLOW-UPS FROM SEPTEMBER 27 FORUM

Follow-Up Item	Lead Agency	Status
Develop cross-agency strategies to address septic issues and challenges.	DOH	Done (slides 17-19)
Develop high-level overview of wastewater treatment plants	Ecology	Done (slides 20-23)
Provide a status report on Hood Canal wastewater treatment projects	PSAT	Done (slides 24-26)
Provide “on time, within budget” status report on State Parks wastewater system upgrades	State Parks	“On Time” status complete (slides 27-33)
Compare Puget Sound Partnership priorities with the draft 2007-09 Puget Sound Plan.	PSAT	To be completed by Dec. 1, 2006
Develop cross-agency report card on actions specified in the Governor’s Puget Sound Initiative and the 2005-07 Puget Sound Plan	PSAT, GMAP Office	To be completed by Dec. 15, 2006
Prepare logic models and causal factor maps for nutrients/pathogens and contaminated sites.	PSAT, GMAP Office	To be completed by Dec. 15, 2006
Prepare a comparison of major state grant and loan programs with reference to Puget Sound priorities, protection versus restoration, project selection criteria, funding cycles, and other key attributes.	CTED, Ecology	To be completed by Dec. 15, 2006
Develop new approaches for presenting and analyzing the Puget Sound budget, tracking spending, and linking spending to results.	OFM	To be completed by Mar. 23, 2007

Department of Ecology

Department of Natural Resources

What does the Cleanup Program do?

We clean up contaminated sites around the state.

Most contamination comes from:

- Leaking underground storage tanks (gas stations)
- Past industrial practices (smelters, waste handling practices, agricultural uses, and landfills)
- Accidental spills (related to industrial practices)

We clean up the resultant contamination that has impaired our land and water resources, including sediment and groundwater.

Both the State and Federal governments have a program to clean up sites:

- MTCA (“MOTCA”) is the state cleanup law (Model Toxics Control Act).
- Superfund is the federal cleanup law.

Why do we clean up sites?

Contamination can pose a risk to public health and the environment.

People can become exposed to contamination through:

- Ingestion
- Inhalation
- Skin contact

Contamination can affect drinking water sources and expose people to chemicals in the water they drink and use at home. This is especially a concern for the younger and more susceptible populations.

➡ Cleaning up contaminated sites protects human health and the environment.

➡ Restoring contaminated property puts it back into productive use, adding to a community's economic and social well being.

How are sites cleaned up?

Under a state or federal lead cleanup process:

- Site gets reported to the program.
- Assess hazard and risk.
- Investigate extent of contamination.
- Study cleanup alternatives.
- Develop a plan to clean up.
- Site clean up work begins.
- Site cleanup work is completed and monitoring may begin.

Under an independent cleanup process:

- Individuals conduct cleanups on their property and may request assistance during the cleanup.
- Individual may request a letter stating the site has been cleaned up.

How long does it take?

It varies depending on the extent of contamination and the process.

State or federal lead process:

These cleanups are generally more complex.

- Several property owners may have contributed contamination to a property.
- Legal issues are common. Costs are higher.

State-wide, these sites average 7 to 8 1/2 years to clean up.

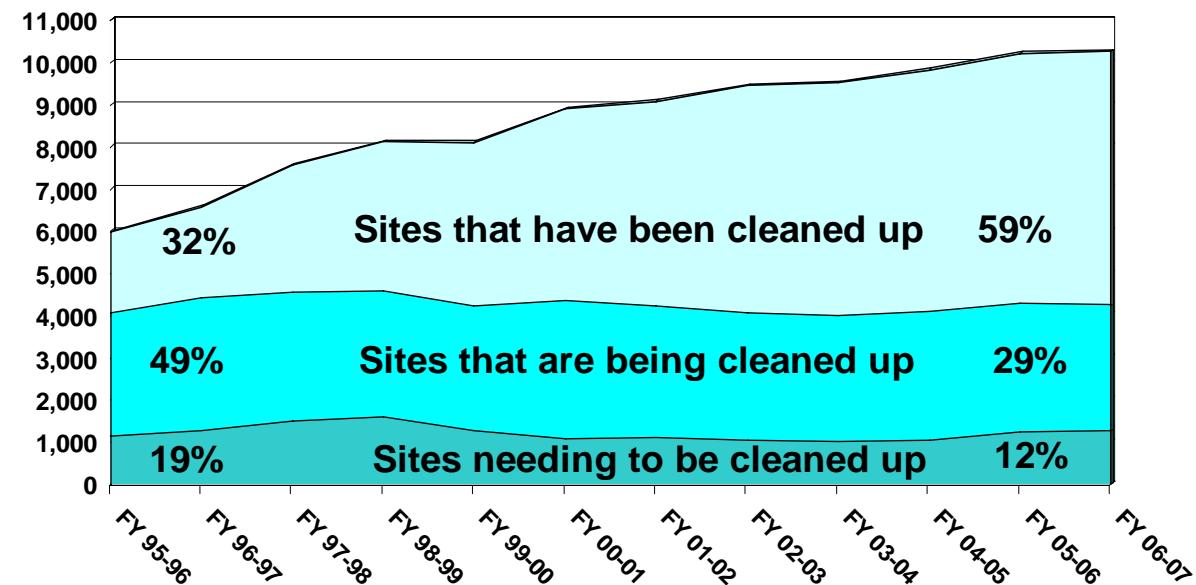
Independent cleanup process:

- These cleanups are done independently.
- People chose if and when to get assistance.
- Cleanups are less complicated and can be done relatively quickly.

State-wide, these sites average 1 year to clean up.

CONTAMINATED SITE CLEANUP

How many sites have been reported in Washington? **10,263**



Data Source: Ecology's Integrated Sites Information Systems – October 2006

Toxics Cleanup Program has been cleaning up sites for over 18 years.

In this time, the program has:

- Cleaned up over 6,000 sites
- Cleanups in process on 3,000 sites.

Cabinet Strategic Plan - Program-wide Measure

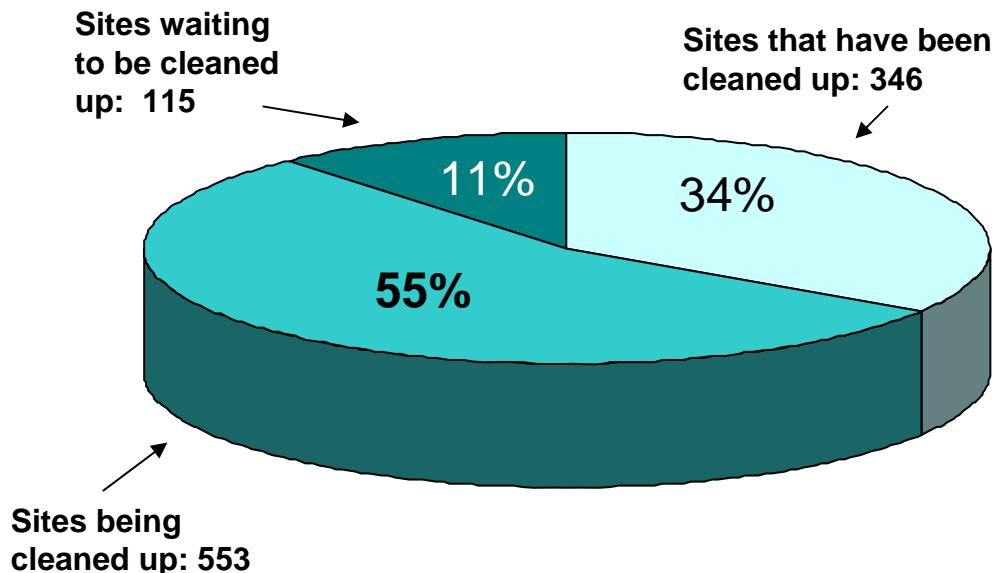
ACTIONS	STATUS	WHO
Clean up 300 currently contaminated sites. Timeline: July 1, 2006 to December 31, 2007	88 contaminated sites cleaned up (July 1 to September 30, 2006). This exceeds the 50 estimated per quarter.	Ecology

How many sites are within ½ mile of Puget Sound?

Puget Sound Sites (within 1/2 mile)

1,014 as of June 2006

(These sites are a subset of all state sites)



Puget Sound Supplemental Budget Actions:

The supplemental funding added 15 staff to work on more Puget Sound sites. All staff have been hired.

Of these staff, 8 are site managers.

This has allowed cleanup activities to begin on 14 additional sites since July 2006.

Supplemental Budget:

Work on contaminated upland sites:

- \$4 million

Work on contaminated aquatic sites:

- \$5 million

Cleaning up contaminated sites within ½ mile of Puget Sound

Since July 1, 2006

Sites waiting to be cleaned up around the Puget Sound have been prioritized based on:

- **Current or future aquatic impacts.**
- **Overall ranking of sites.**
- **Ability to begin immediate cleanup actions.**

14 additional sites in or near Puget Sound have begun cleanups. Another 15 are in the planning stages and nearly ready to begin cleanups.

There are 49 superfund sites in this same area.

Challenges

- **Start-up time to get sites into cleanup process.**
- **Sediment sites take longer to clean up.**
- **Costs are generally higher.**

Currently around the Puget Sound, sites in the process of being cleaned up have taken an average of 13 years.

Data Source: Integrated Sites Information Systems

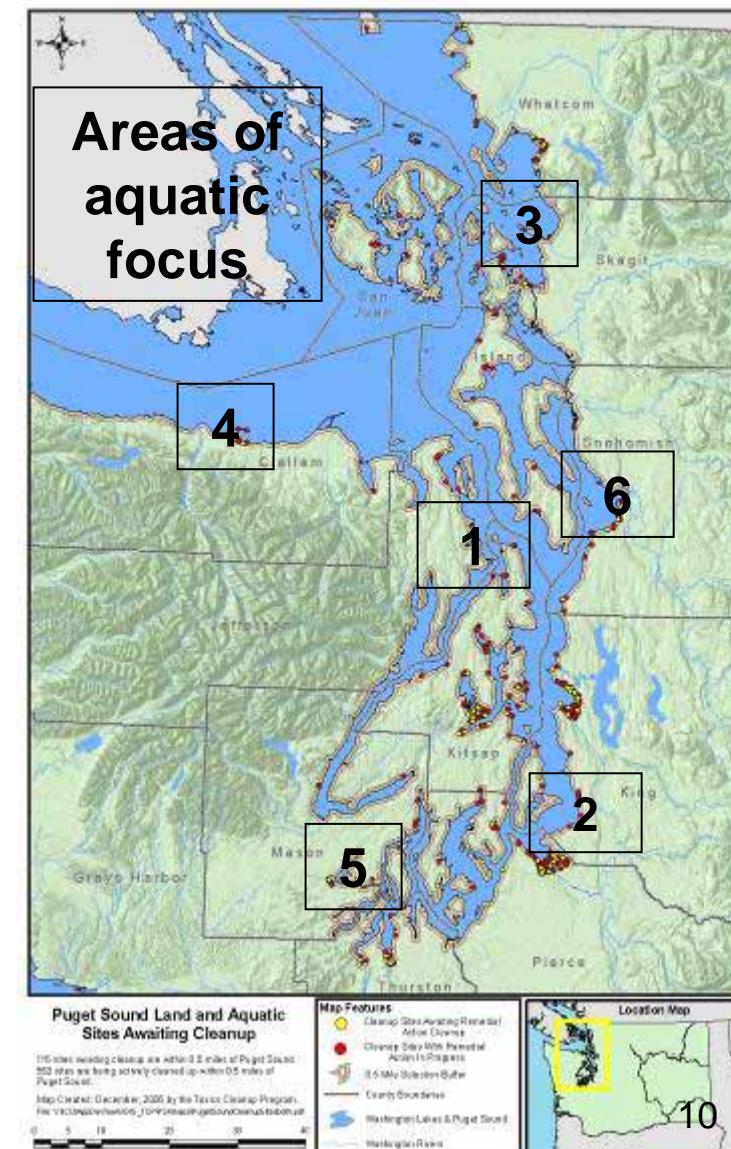


CONTAMINATED SITE CLEANUP

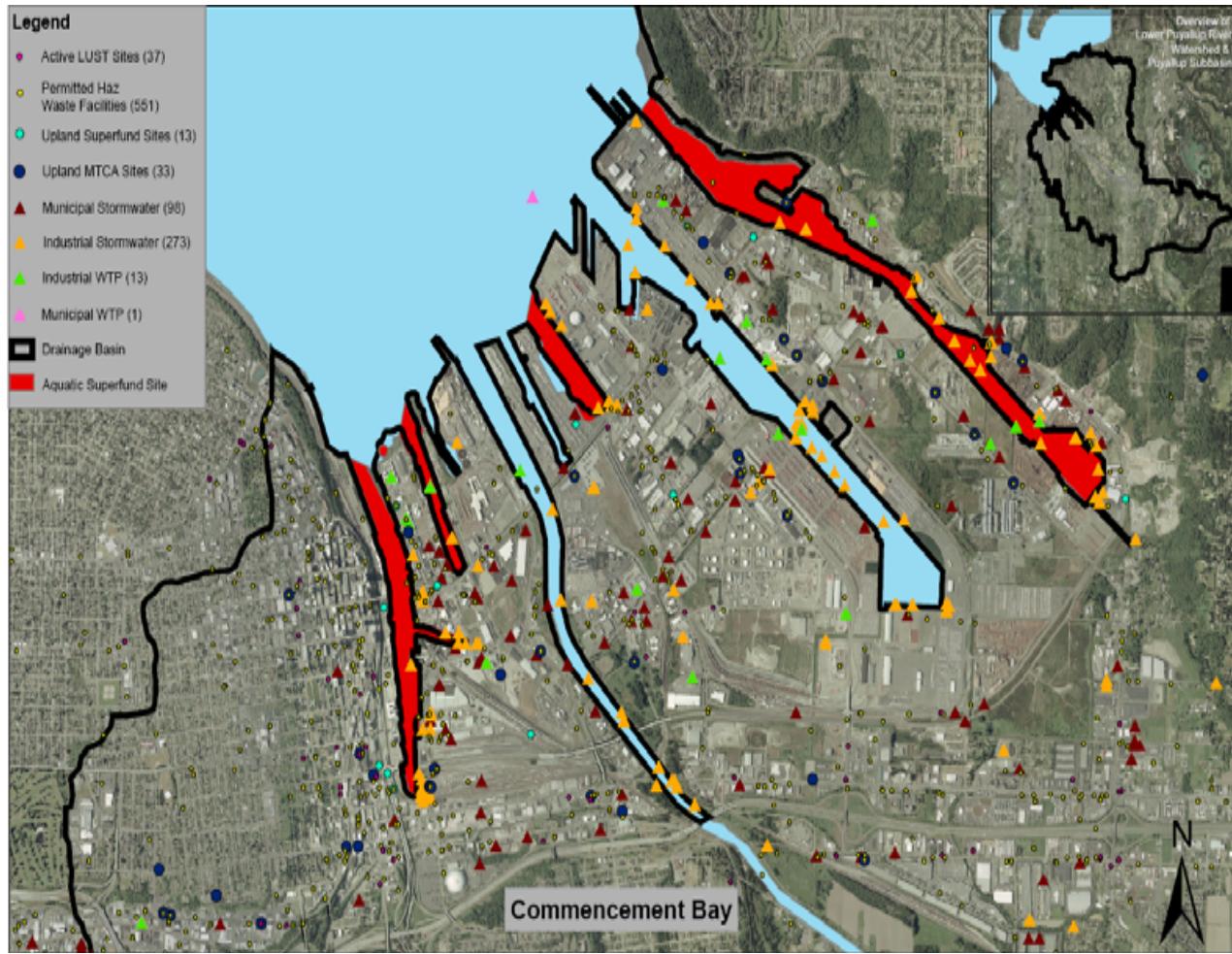
Primary areas of focus around Puget Sound

Cleanups are in coordination with Departments of Natural Resources and Health

1. Port Gamble (also includes Kitsap Peninsula & Bremerton area)	Wood waste & contaminated sites impacting geoducks, oysters, clams	Dredge wood waste (12/2006) Restore habitat & natural resources	Healthy shellfish beds & improved fish habitat	About 2-4 sites
2. Dumas Bay (Poverty Bay to Dash Point)	Closed geoduck bed due to outfall	Move the outfall Reopen geoduck beds about 2010-2011	Restore commercial geoduck beds and economic gains	About 1 site
3. Padilla Bay/ Fidalgo Bay & Port of Anacortes	Contamination from closed Whitmarsh Landfill & Port of Anacortes	Cleanups Restore habitat related to the landfill and the Port	Restore productive marine / estuary habitat	About 20 sites
4. Port Angeles	Wood waste and other contaminated sediments	Cleanup contaminated sediments	Improve marine health and habitat	About 13 sites
5. Oakland Bay, Shelton	Wood waste impacting oyster beds	Dredge wood waste Restore habitat & natural resources	Improve habitat and natural resource	About 11 sites
6. Port Gardner/ Snohomish River Estuary	Wood waste and other contaminated sediments	Clean up sediments Restore habitat	Restore productive marine / estuary habitat	About 20 sites



Challenges in cleaning up contaminated sites with sediments



State-owned aquatic lands and sediment sites in general

- Pace of cleanup -- cleanups are lengthy.
- Ability to maintain long-term commitment to due to funding volatility.
- Institutional challenges in funding cleanups for state-owned-aquatic-lands.
- Legal framework, including naming parties that have contributed to the contamination.
- Disposal alternatives and costs.
- Upland sources that need to be controlled.
- Reluctant parties that contributed to contamination.
- Areas of wide-spread contamination.
- Sheer number of sites.

CONTAMINATED SITE CLEANUP

Realistically, how could we begin clean up at all the contaminated sites within ½ mile of Puget Sound?

Current Target: 50 additional sites with the supplemental budget, 20 per year by the rest of the program.

Analysis

Preliminary estimate: Rate of newly reported sites is greater than the number of sites cleaned up. All clean ups could be started on Puget Sound sites by 2020 if we had:

- Additional site managers
- Additional sediment experts

Challenges

Issues which are or will have to be addressed include:

- Extent of contamination in and around Puget Sound.
- Recontamination issues from upland sources.
- Sediment cleanups are particularly lengthy and need a commitment to long-term site cleanup.
- Rate of new sites being reported.

Next Steps	Who	Target Dates
Complete current analysis of sediment sites around Puget Sound. This will likely add sites to our current list of Puget Sound sites.	Ecology in coordination with Departments of Natural Resources and Health	3/2007
Recontamination assessment: Begin investigation of Slip 4 in Lower Duwamish Waterway. Pthalate work group investigation of larger municipalities in City of Tacoma and King County.	Ecology in coordination with the Environmental Protection Agency, City of Seattle, City of Tacoma, King County.	6/2007 for both
Begin cleanup in all six priority areas where interim actions and early cleanup can make the most difference. Three have begun, 3 more to begin.	Ecology in coordination with Departments of Natural Resources and Health	12/2008
Refine existing priority setting models to address sites in-water and within ½ mile of Puget Sound.	Ecology	12/2006 12

Department of Health

Department of Ecology

Puget Sound Action Team

Washington State Parks

Management of Wastewater is a Major Challenge in the Puget Sound Basin

Both meet or exceed secondary treatment standards; both capable of higher treatment	Sewers (discharge to surface water)	Septics (discharge to soils)
Population Served (projected increase of 35% by 2025)	2.85 Million (71%)	1.15 Million (29%)
Total Volume	400 Million GPD	175 Million GPD
Combined Sewer Overflows & Big Pipe Breaks	>1.3 Billion gallons/year ¹	None
Shellfish Acres Permanently Closed	~28,000 acres (not including urban bays)	<2,000 acres (where septic systems are the only source)
Groundwater Recharge	Limited (pipeline losses; upland spray)	High (greater risk if failure)
Nitrogen Reduction	10-40% ² (except tertiary treatment)	10-40% Basic System ³
Operation and Maintenance	Daily	Limited
Failures – Shellfish Closures – Public Swimming Beach Closures	Large Areas 57 Short-term (2005-2006)	Localized Areas 10 Long-term (2005-2006)

¹2002 Ecology CSO Focus Sheet

³Onsite Wastewater Systems Manual, EPA/625/R-00/008, Table 3-17, February 2002

²Ecology: ~ 5 percent of 400 Million GPD **Data source:** DOH Office of Shellfish and Water Protection 11/2006

Realistically, how many closed shellfish acres can be opened by 2020?

Current Target: 1,000 acres / biennium

Analysis

- Preliminary estimate*: Possible 10,000 commercial acres opened by 2020 if:
 - no additional acreage lost to pollution
 - integrated efforts, adequate resources (ECY, DOH, Ag, Tribes, PSAT, counties, conservation districts, sewer districts)

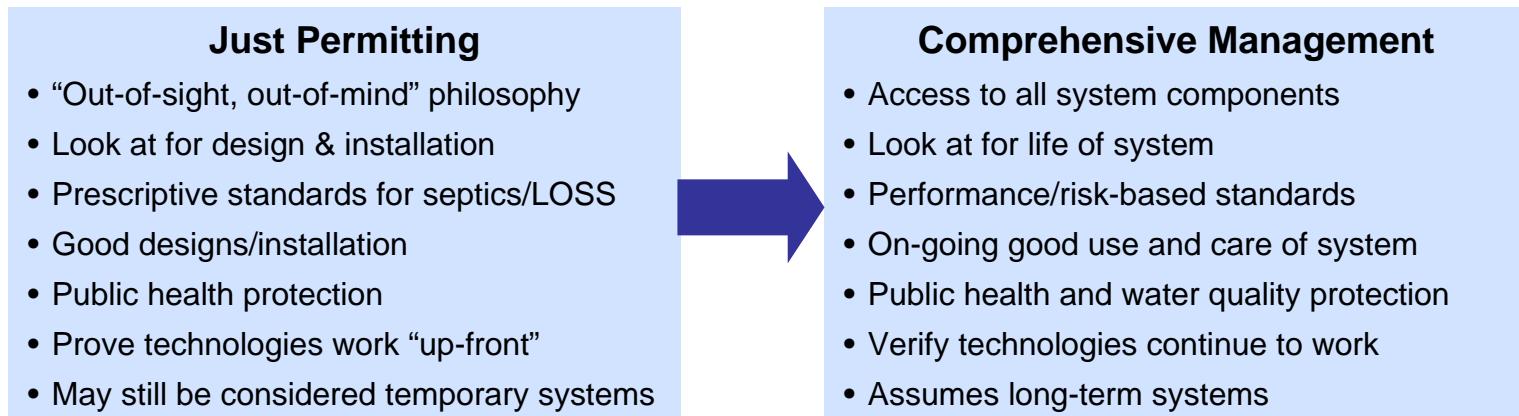
Challenges

- Issues which will have to be addressed include:
 - Sewer outfalls
 - Septic systems
 - Stormwater
 - Livestock waste
 - Marinas / Boating

Next Steps	Who	Target Dates
Identify agency contacts / initiate coordination	DOH, ECY, PSAT, DNR, others	1/2007
Finalize preliminary acreage estimate	DOH, ECY, PSAT, DNR, counties	6/2007
Prioritize, develop plans and timelines / identify funding needs and sources	DOH, ECY, PSAT	9/2007

* DOH analysis

Is a septic system paradigm shift needed?



Septic Systems 2020 Target: Comprehensive Management Paradigm Shift

Vision

- Assure Good Government
 - ✓ Clarify jurisdiction/rules – legislation
 - ✓ Funding/Effectiveness
- Assure Proper Design and Installation
 - ✓ Performance-based standards
 - ✓ Leverage technology
- Assure Proper Operation and Maintenance
 - ✓ Effective management plans
 - ✓ Engaged and responsive homeowners
- Provide Incentives
 - ✓ Repair/enforcement resources
 - ✓ Utility management

Analysis

- 500,000 septic systems in Puget Sound Basin
- 13 DOH staff statewide (6 technical)
- Huge shift required:
 - ✓ At best, 15 years of concentrated, consistent, committed effort
 - ✓ Resources
 - o Improve state/local oversight
 - o Education
- Shift will involve/need concurrence with: DOH, SBOH, LHJs, PSAT, ECY, DOL, EPA, CTED, Parks, DOC, rule & advisory committees, local boards of health, county commissioners, legislature, WSU, UW, environmental groups, septic system industry, shellfish industry, product manufacturers, developers, realtors, homeowners, & other stakeholders

Action steps for the state to achieve a septic system paradigm shift...

ACTIONS	WHO	WHEN
Assure Good Government		
<input type="checkbox"/> Clarify Agency Jurisdiction – Large Systems	DOH, ECY, Leg.	2008 (unless earlier legislation)
<input type="checkbox"/> Assure Stable Funding <ul style="list-style-type: none"> ▪ Local Health to have effective O&M; implement management plans ▪ DOH: O&M for large systems, technical assistance ▪ State assistance to small communities & utilities for wastewater planning 	Governor's Office, Leg. Governor's Office, Leg. DOH, ECY	2007 Legislature* 2007 Legislature* On-going**
<input type="checkbox"/> Review Effectiveness of Local Health Programs	DOH, LHJs	Every 5 years**
<input type="checkbox"/> Update Large Systems Rule	DOH, SBOH, Stakeholders	7/2008*
<input type="checkbox"/> Develop Septic Tank Rules	DOH, SBOH, Stakeholders	6/2008
<input type="checkbox"/> State Board of Health Rule Updates	DOH, SBOH, Stakeholders	Every 4 years
Assure Proper Design and Installation		
<input type="checkbox"/> Assure Systems are Designed and Reviewed Properly <ul style="list-style-type: none"> ▪ Evaluate design license effectiveness ▪ Develop design/review checklists and assure consistent quality 	DOH, DOL, LHJs, Designers DOH, LHJs, Designers	12/07; every 4 yrs** 2009**
<input type="checkbox"/> Assure Quality Installations <ul style="list-style-type: none"> ▪ Explore state licensure/consistent state exam ▪ Develop consistent final inspection process 	DOH, LHJs, Installers DOH, LHJs, Industry	2009** 2010**
<input type="checkbox"/> Develop and Implement Performance-based Standards for Alternative Technologies	DOH, EPA, others	Initiate 2008**
<input type="checkbox"/> Update Technology Listing and Guidance Documents	DOH, EPA, others	On-going

*Additional resources required under DOH decision package

**Resources required over and above DOH decision package

Data source: DOH Wastewater Management Program 11/2006

Action steps for the state to achieve a septic system paradigm shift...(cont'd)

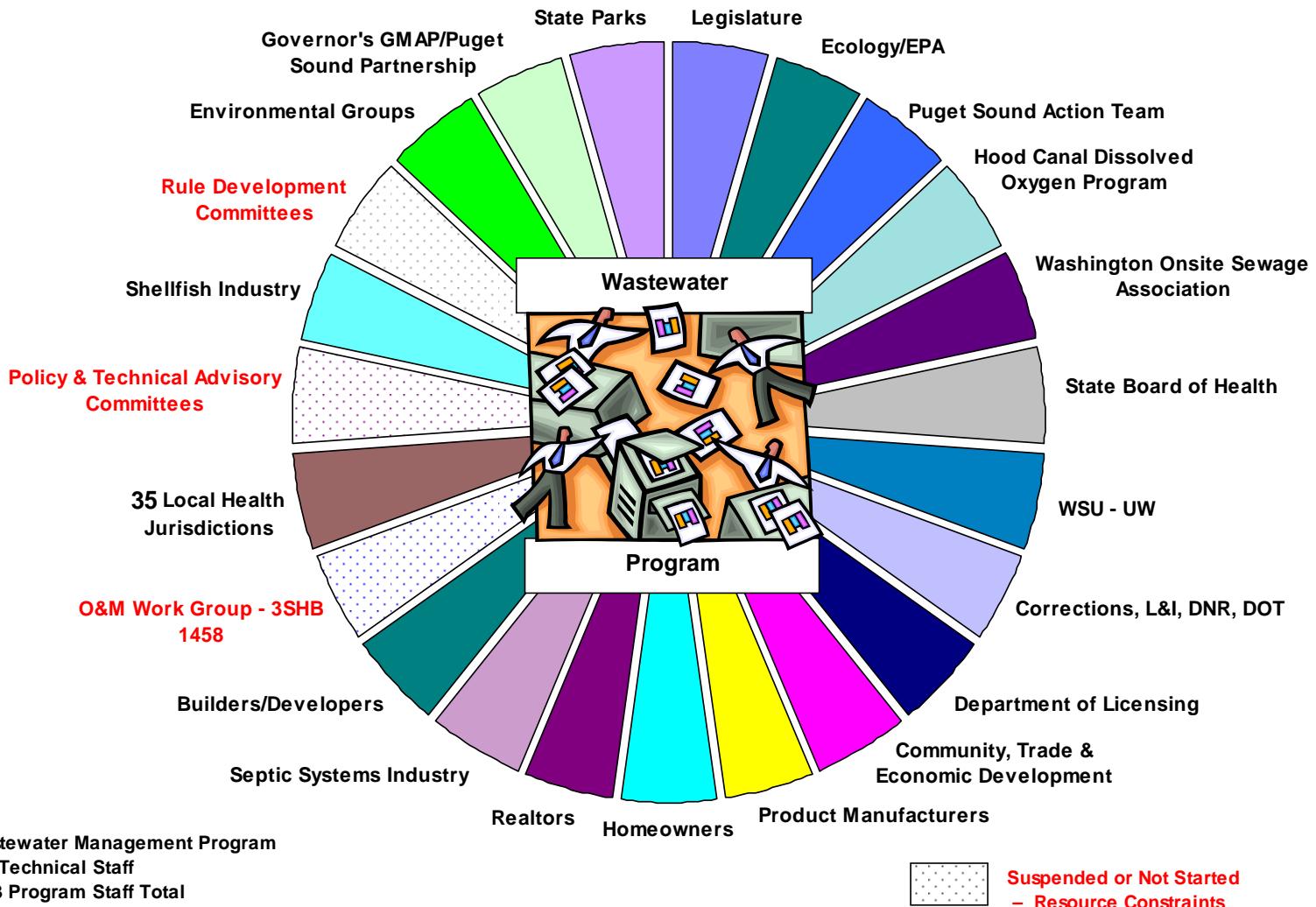
ACTIONS	WHO	WHEN
Assure Proper Operation and Maintenance		
<input type="checkbox"/> Update Management Plans and Marine Recovery Area Designations	LHJs	7/2007; every 5 years**
<input type="checkbox"/> Convene Work Group – Licensing of Maintenance Specialists	DOH, DOL, Industry	As soon as staff available
<input type="checkbox"/> Assure Homeowners Understand and Maintain Systems (requires social marketing strategies)	DOH, LHJs, PSAT, WSU, UW, Industry	On-going**
<input type="checkbox"/> Provide Technical/Administrative Aid to LHJs; Technical Training	DOH, Industry	On-going
<input type="checkbox"/> Implement and Maintain Statewide Data System, Comprehensive Inventory	DOH, LHJs	12/2009* operational statewide; updates on-going
Provide Incentives		
<input type="checkbox"/> Grants/Loans Available to Facilitate Repairs	DOH, ECY, CTED, others	On-going***
<input type="checkbox"/> Funding for DOH/Local Health Enforcement	DOH, LHJs	On-going**
<input type="checkbox"/> Identify Barriers for Utility (public & private) Maintenance of Septic Systems	DOH, ECY, PSAT, Industry	2/2007
<input type="checkbox"/> Support Hood Canal Pilot Project	Industry, DOH, ECY, PSAT	2007 Legislature
<input type="checkbox"/> Develop Legislative Strategy to Create Incentives/Remove Barriers for Utility Management	DOH, ECY, PSAT, Industry	6/2007

* Additional resources required under DOH decision package

** Resources required over and above DOH decision package

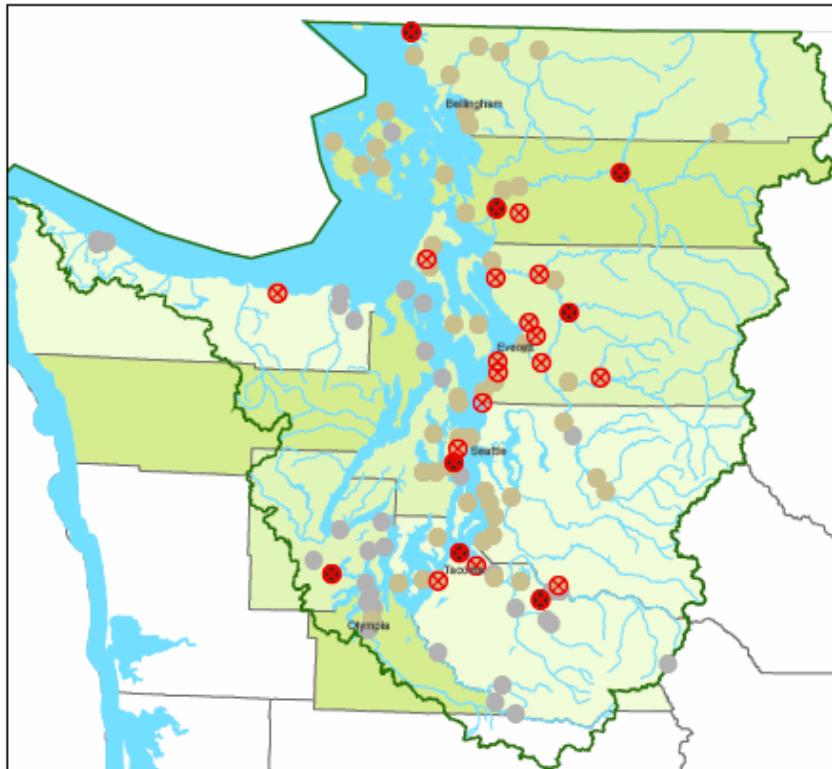
*** Non-DOH funding

DOH Wastewater Program Partners



What will it cost & when will treatment plants be upgraded for a) basic need, b) nitrogen removal?

Wastewater Treatment Plants in Puget Sound Region



Percent of Capacity

- 36% - 85%
- 86% - 150%
- No information

✖ Facilities Planning to Upgrade within 5 Years

County Population Growth
2005-2020

11% - 20%
21% - 30%
31% - 40%

ANALYSIS

Current upgrade costs for 24 plants; 70% for Brightwater	\$2.7 billion	2007 - 2012
Costs for upgrading most of remaining 86 plants	> \$2.1 billion	2013 - 2026
Nitrogen removal will cost up to 25% more	< \$600 million	2007 - 2026
10 plants have combined sewer overflows; ~3 meet goal		
10 plants have water re-use; 16 more have potential projects		

ACTIONS

Identify nitrogen sources to Hood Canal and South Sound	\$4 M (Canal) \$2 M (S Sound)	2008 2010
Secure funding for nitrogen studies in Central Sound, Whidbey & Dyes/Sinclair Inlet	\$5 Million needed	2008
Review/update environmental priority criteria for grants and loans as necessary	Coordinate with CTED	On-going
Monitor progress on reducing Combined Sewer Overflow events; goal is 1/year/outfall	6 plants (126 CSOs) by 2020 1 plant (38 CSOs) by 2030	
Adopt water re-use rule to streamline implementation	\$440,000	2010

What will it cost & when will the 8 largest treatment plants be upgraded?

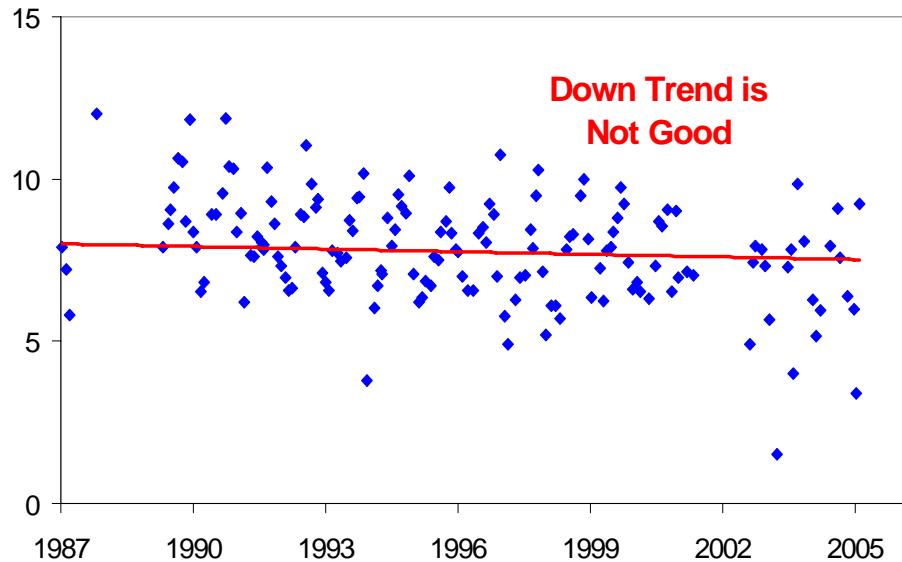
Large Wastewater Treatment Plants in Puget Sound Region



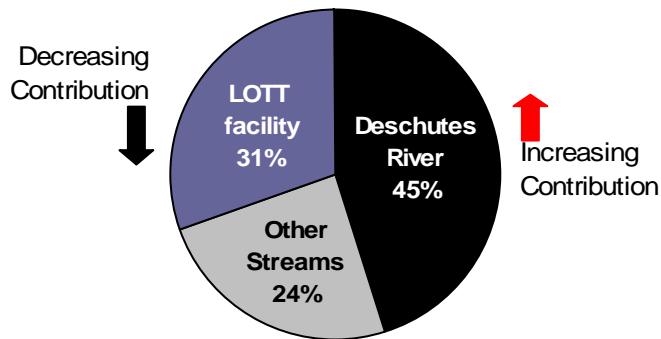
ANALYSIS

- The largest 7 existing plants contribute >85% of municipal wastewater flows entering Puget Sound.
- The 2 existing King County plants contribute ~70% of the flows.
- Brightwater is a new plant under construction which will minimize but still contribute additional nitrogen.
- LOTT minimizes nitrogen during the summer.
- > \$3.2 billion in upgrades planned in next 20 years
- Seattle/King County have 74% of existing Combined Sewer Overflow outfalls.
- Most plants have existing or potential wastewater re-use projects.

What have we learned about nitrogen removal from LOTT Budd Inlet project?



Summertime Local Inputs to Budd Inlet
Dissolved Nitrogen 1997 data (lbs/day)



ANALYSIS

- Summer dissolved oxygen levels in Budd Inlet are trending down, which is not a good sign.
- Local nitrogen sources to Budd Inlet are roughly:
 - 45% Deschutes River
 - 31% LOTT Wastewater Treatment Plant
 - 24% Other Streams
- In 1994, LOTT (Lacey Olympia Tumwater Thurston County) upgraded the treatment plant to remove nitrogen and now discharges 70% less nitrogen in the summer than in the winter.
- Nitrogen inputs from the Deschutes River/Capitol Lake have been increasing.

ACTIONS

- Ecology will complete a Budd Inlet Water Cleanup Plan, with Capitol Lake modeled as a lake and as an estuary, in mid-2008.
- The cleanup plan will identify next steps, which may include further reducing nitrogen from LOTT and reducing pollution to the Deschutes River/Capitol Lake.

Puget Sound Wastewater Treatment Summary

Number of wastewater treatment plants in basin	110	
Number of treatment plants:	below 85% capacity	66
	at or above 85% capacity	8
	unknown capacity	36
Number of large treatment plants discharging >12 million gallons per day	8	
Number of treatment plants undergoing upgrades in:	All	Large
0-5 years	24	3
6-20 years	24	4
> 20 years	5	
Unknown or unplanned	58	1
Number of treatment plants with nitrogen limits in permit	12	
Number of treatment plants with water re-use projects:	ongoing	10
	potential	16
Number of entities with stormwater combined sewer overflow outfalls:		
2-4 outfalls	6	
14-92 outfalls	4	



puget sound action team

Hood Canal Status Report: Project Timeframes

2007

2008

2009

2010

2011

plan / design/ permits

construction

operation

Belfair Urban Growth Area: Mason County

Grants & technical help:
Ecology PS Action Team
CTED US EPA

- ✓ \$16 M federal/state
- (+) \$ 5 M shortfall for UGA area
- (+) \$ 9.4 M shortfall for limited extension to shoreline (post-2010?)
- (+) \$ 13 M shortfall for full extension to Northshore (post-2010)

plan / design/ permits

construction

operation

Hoodsport / Skokomish: Mason Co / Mason PUD / Skokomish Tribe

Grants & technical help:
Ecology PS Action Team
CTED US EPA
State Parks (land-swap)

- ✓ \$ 7.25 M federal/state
- (+) \$? M shortfall

Hood Canal Status Report Belfair Sewer

Schedule

- Approve facility and land use plan amendments - 1/2007
- Complete design - 2007/2008
- Start construction - 2008/2009
- Plant operational - end of 2009

Budget

- \$15,929,106 committed
- Need \$21 million for Belfair UGA, plus \$22.4 million for entire North Shore

Barriers

- Need \$27.5 million more
- Sewer extension to North Shore defensible under GMA, but untested legally
- Cost to Homeowners

Action plan

- Encourage application for competitive funding
- Continue state TA
- Issue timely state permits

Hood Canal Status Report

Hoodsport/Skokomish Wastewater Treatment

Overall Schedule

- Public meetings starting 2006
- Meet SEPA/NEPA requirements and apply for STAG - 2007
- Plan amendments and design - 2007
- Construction - 2008/2009
- Hoodsport plant operation – 2010

Budget

- \$177,000 obtained for pre-design and public process
- \$7 million earmarked or committed for construction

Barriers

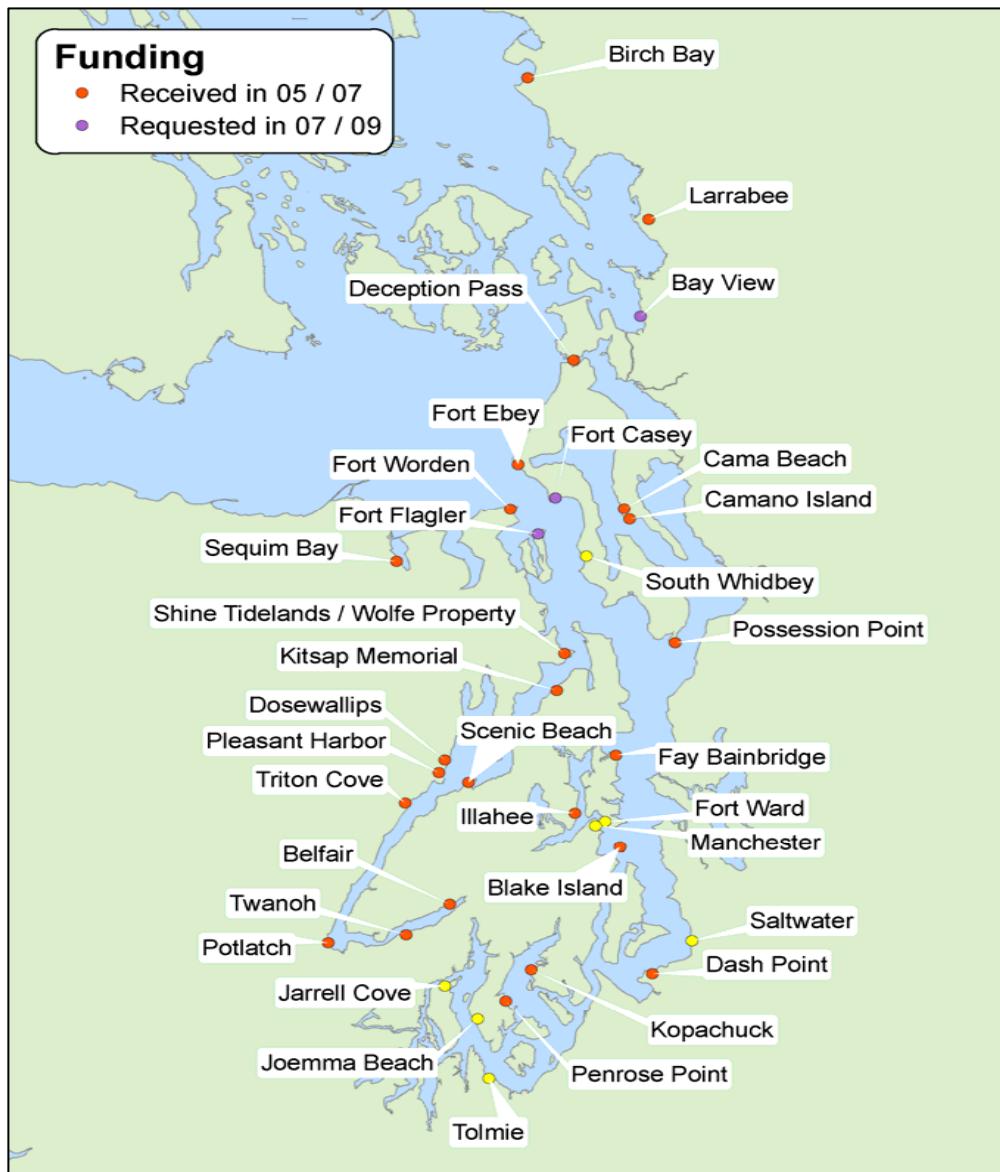
- Local match for STAG funds
- Land swap for Potlatch
- O and M funding
- State parks funds spent or committed by June 2007
- Treatment alternatives for other homes

Action plan

- Find matching funds
- Find funds for O and M



STATE PARKS WASTEWATER PROJECT LOCATIONS



- 34 parks along Puget Sound and Hood Canal, with 12 million visitors per year
- 24 parks received funding in the 2006 legislative session for wastewater treatment



The tables on the following slides indicate whether projects are on schedule (blue shading) or have potential problems (orange shading).

BLUE: on schedule

ORANGE: potential problem

Project Implementation Considerations

- ❖ Parks has set a very aggressive schedule for project implementation
- ❖ Not all aspects of completing a project are in Parks direct control
- ❖ Good communication is vital for expectation management
- ❖ Failure to meet this schedule may be interpreted by some as a failure by Parks
- ❖ Use seasons will constrict work windows



STATE PARKS WASTEWATER PROJECT STATUS

Park	Project	Total Cost	Anticipated Bid Date	Anticipated Compl. Date
Birch Bay	Connect to municipal sewer	\$125,000	March 07	June 07
Blake Island	Wastewater Reuse system	\$250,000	May 07	October 07
Camano Island	Replace shop/residence treatment system	\$300,000	May 07	May 07
Deception Pass	Coronet Bay connection to NAS Whidbey	\$350,000	March 07	Sept 07
Fay Bainbridge	Replace existing system with MBR technology	\$1,300,000	March 07	Sept. 07
Fort Casey	New park-wide wastewater collection and treatment system	\$350,000	Under Construction	March 07
Fort Ebey	Upgrade existing treatment system	\$675,000	March 07	December 07
Ft. Flagler	Upgrade wastewater collection system, phase 2	\$750,000	Feb. 07	June 07



STATE PARKS WASTEWATER PROJECT STATUS

Park	Project	Total Cost	Anticipated Bid Date	Anticipated Compl. Date
Ft. Worden	Replace beach area sewage pump station	\$300,000	Feb. 07	June 07
Illahee	New wastewater collection & treatment system	\$1,100,000	April 07	Dec. 07
Kopachuck	Upgrade Wastewater System	\$1,200,000	Feb. 07	Dec. 07
Larrabee	Replace existing system w/MBR technology	\$750,000	March 07	Dec. 07
Penrose Point	Upgrade wastewater system	\$700,000	March 07	Dec. 07
Possession Point	New Wastewater collection/treatment system	\$250,000	March 07	Dec. 07
Sequim Bay	Connect city of Sequim treatment system	\$925,000	Dec. 06	June 07



STATE PARKS WASTEWATER PROJECT STATUS

Park	Project	Total Cost	Anticipated Bid Date	Anticipated Compl. Date
Belfair	Upgrade wastewater treatment system	\$700,000	March 07	June 07
Dosewallips	Replace wastewater collection/treatment system	\$1,850,000	May 07	December 07
Kitsap Memorial	Renovate RV dump station & drainfield	\$500,000	Sept. 07	Dec. 07
Pleasant Harbor	Upgrade wastewater & Stormwater treatment	\$150,000	April 07	Sept. 07
Potlatch	Upgrade wastewater/stormwater treatment	\$1,050,000	June 07	Dec. 07
Scenic Beach	Replace wastewater collection/treatment system	\$900,000	March 07	Dec. 07



STATE PARKS WASTEWATER PROJECT STATUS

Park	Project	Total Cost	Anticipated Bid Date	Anticipated Compl. Date
Shine Tidelands/ Wolfe Prop.	Upgrade wastewater/stormwater system	\$850,000	March 07	Oct. 07
Triton Cove	Upgrade wastewater/stormwater management	\$170,000	April 07	Sept. 07
Twanoh	Replace wastewater collection/treatment system	\$1,000,000	Nov. 06	June 07
Various	Creosote cleanup	\$300,000	April 07	Oct. 07